NEWFOUND LAKE

2019 SAMPLING HIGHLIGHTS

Cockermouth River Subwatershed

Blue = Excellent

Yellow = Fair

Red = Poor

Light Gray = No Data

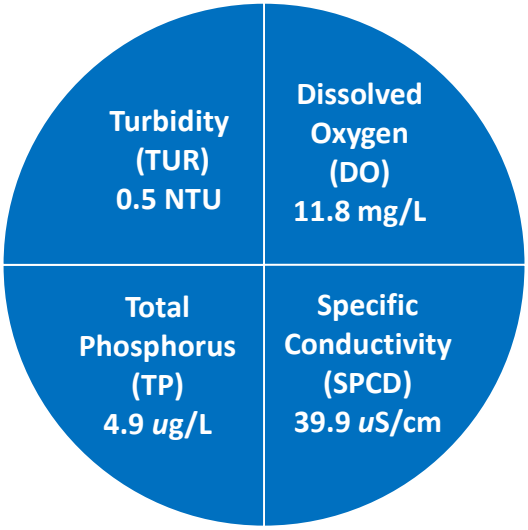


Figure 1. Cockermouth River Subwatershed Average Water Quality (2019)

Table 1. 2019 Cockermouth River Subwatershed Seasonal Average Water Quality Measurements.

Parameter	Assessment Criteria					Cockermouth River Subwatershed Average (range)	Cockermouth River Subwatershed Classification
Turbidity * (NTU)	< 0 - 5.0 Desirable	6 – 10 Low Impact	11 – 50 Moderate impact	51 – 100 Moderate – high impact	> 101 High impact	0.5 NTU (range: < 0.2 – 1.2)	Desirable
pH (standard units)	< 5.5 suboptimal for successful fish growth and reproduction		5.5 – 6.5 sufficient for successful fish growth and reproduction		6.5 – 8.5 optimal range for fish growth and reproduction	6.4 standard units (range: 6.2 – 7.1)	Sufficient for successful fish growth and reproduction
Dissolved Oxygen (mg/L)	< 5 Suboptimal for successful brook trout growth and survival			> 5 Typically sufficient for successful brook trout growth and survival		11.8 mg/L (range: 6.9 – 13.8)	Typically sufficient for successful brook trout growth and survival
Specific * Conductivity (uS/cm)	0 – 100 Normal	101 – 200 Low Impact	201 – 500 Moderate Impact	> 501 High Impact		39.9 *u*S/cm (range: 13.0 – 159.3)	Normal
Total * Phosphorus (*u*g/L)	< 10 ug/L Ideal	11 - 25 Average	26.0 – 50.0 More than desirable	> 51 Excessive		4.9 *u*g/L (range: 2.1 – 9.1)	Ideal

* Water quality assessment criteria are provided by the New Hampshire Department of Environmental Services for general guidance only. Natural variations among rivers and streams will occur and should be considered when interpreting the water quality data.

Table 2. 2019 Cockermouth River Subwatershed Seasonal Average Water Quality Inter-comparison among Sampling Stations.

Site ID *	Average Turbidity (NTU)	Average Specific Conductivity (*u*S/cm)	Average Total Phosphorus (*u*g/L)	Average Dissolved Oxygen (mg/L)	Average pH (standard units)
WB-U10	0.2	16.0	4.5	10.1	6.2
CR-H11	0.8	47.7	6.0	10.2	6.4
CR-H12	0.6	47.3	6.2	10.4	6.4
CR-H14	0.6	38.8	4.1	10.8	6.4
CR-U10	0.3	13.1	3.5	13.7	6.3
CR-U20	0.5	22.3	4.5	11.4	6.6
CR-U25	0.7	15.1	9.1	13.7	6.5
CR-U30	1.2	13.8	5.8	13.6	6.5
CR-U40	0.2	15.2	2.1	13.4	6.7
CR-U70	0.4	82.7	4.4	11.4	6.5
CR-U80	0.4	126.7	4.0	11.4	6.4

* Refer to Figure 4 for a map of the sampling locations.

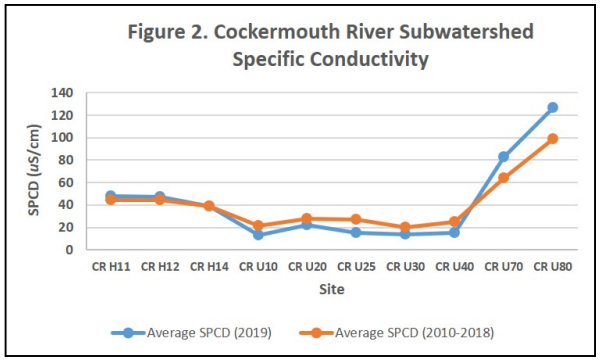
Cockermouth River Subwatershed Highlights

The Cockermouth River subwatershed is the second largest river drainage network that feeds into Newfound Lake. The 18,088-acre Cockermouth River subwatershed is monitored with 11 active sampling locations that are positioned at various points along the Cockermouth River and its feeder streams. Sampling locations were selected to characterize the overall water quality and to screen for potential problem areas within the Cockermouth River subwatershed.

The 2019 Cockermouth River water quality measurements generally indicate high water quality among the sampling sites. However, notable variations in average specific conductivity (a surrogate for salt runoff) included elevated readings at Sites CR-70 and CR-80 (Figure 2). A comparison between the 2019 and the 2010-2018 average specific conductivity data indicates most of the Cockermouth River sampling locations are characterized by similar patterns between the current and historical data (Figure 2); sites with higher 2019 specific conductivity measurements were typically characterized by higher specific conductivity levels historically (Figure 2).

The 2019 average turbidity (suspended soil and other particles) levels and average total phosphorus (nutrient) concentrations were low in the Cockermouth River subwatershed (Figure 3).

Brook trout, an indicator of high quality water, have frequently been observed during field sampling visits to the Cockermouth River and the affiliated feeder streams. Dissolved oxygen concentrations measured in the Cockermouth River tributaries remained within the range considered sufficient to support the successful brook trout growth and reproduction.



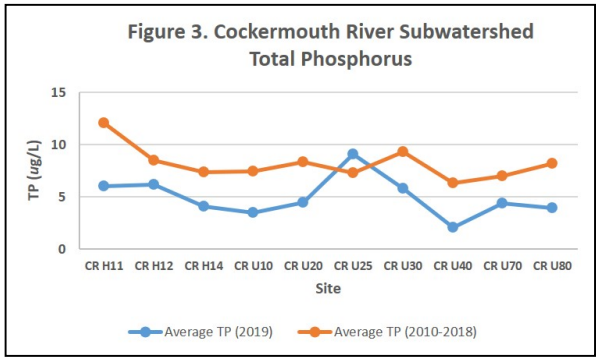


Table 3. Comparison of Seasonal Average Water Quality by Subwatershed (2019)

Subwatershed	Average * Turbidity (NTU)	Average * Specific Conductivity (*u*S/cm)	Average * Total Phosphorus (*u*g/L)	Average * Dissolved Oxygen (mg/L)	Average * pH (Standard Units)
Black Brook	2.2	159.6	9.3	12.2	6.4
Cockermouth River	0.5	39.9	4.9	11.8	6.4
Dick Brown Brook	0.9	40.2	7.7	10.5	6.6
Fowler River	0.6	29.3	7.7	10.9	6.3
Georges Brook	0.5	39.0	6.8	10.8	6.4
Hemlock Brook	0.4	36.7	5.4	10.8	6.8
Whittemore Brook	0.3	26.9	5.0	11.0	6.6
Tilton Brook	0.4	107.3	7.5	11.1	6.7

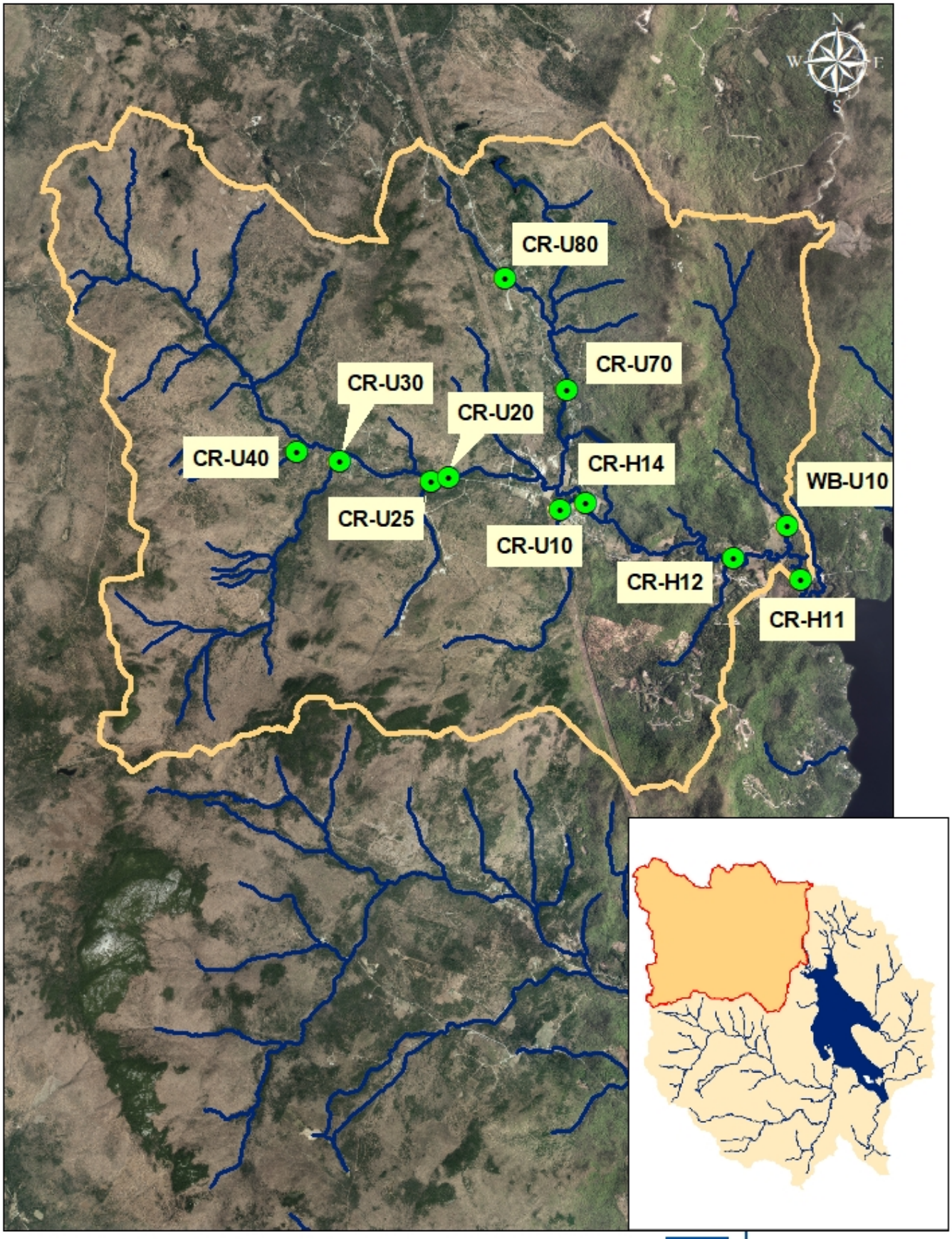
* The displayed water quality results are average values for all sampling locations within the respective subwatersheds.

Recommendations for Property Owners:

Implement Best Management Practices within the Newfound Lake watershed to minimize the adverse impacts of polluted runoff and erosion into the lake. Refer to “Landscaping at the Water’s Edge: An Ecological Approach” and “New Hampshire Homeowner’s Guide to Stormwater Management: Do-It-Yourself Stormwater Solutions for Your Home” for more information on how to reduce nutrient loading caused by overland run-off.

- https://extension.unh.edu/resources/files/Resource004159_Rep5940.pdf
- https://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-11.pdf

Figure 4.
2019 Sampling Highlights - Cockermouth River Subwatershed



Aerial Orthophoto Source: NH GRANIT
Site location GPS coordinates collected by the UNH Center for Freshwater Biology

NH Extension